



DEPARTMENT OF TRANSPORTATION

MATERIALS TRANSPORTATION BUREAU

WASHINGTON, D.C. 20590

31138

Table 49—Transportation

CHAPTER I—MATERIALS TRANSPORTATION BUREAU, DEPARTMENT OF TRANSPORTATION

(Docket No. HM-121; Amndt. Nos. 171-40, 172-44, 173-118, 174-31, 177-41, 178-40)

Use of Certain Packagings

AGENCY: Materials Transportation Bureau, DOT.

ACTION: Final rule.

SUMMARY: The purpose of this rule is to amend various sections of the regulations to authorize the use of certain packagings for specific hazardous materials, to modify the specifications of particular packagings, and to incorporate certain miscellaneous changes. These regulatory actions are intended to remove the constraints imposed on shippers by special permits or exemptions without compromising safety, to authorize general use of specific packagings for certain materials and to simplify and clarify the regulations in order to eliminate the possibility of non-compliance with the regulations.

EFFECTIVE DATE: July 20, 1978.

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION: The Hazardous Materials Regulations Board published a notice of proposed rulemaking under docket HM-121 on Oct. 11, 1974 (39 FR 36596; notice 74-12). That notice proposed a variety of miscellaneous changes to sections appearing in 49 CFR parts 172, 173, 174, 177 and 178.

As matter of expediency, this document is being published to complete and close the HM-121 docket. Most of the regulatory changes published in this document are based on experience gained from existing exemptions. Under current practice, such changes would be published by the Materials Transportation Bureau (MTB) under docket HM-139, where proven exemptions are considered for conversion into rules of general applicability (in fact, some of the original HM-121 proposals have been handled that way, as noted in the discussion below). The other regulatory changes in this document are similar in that they are uncomplicated and have generated little public controversy. All comments to this docket which are within the scope

of the 1974 notice have been considered in the preparation of the final rule.

The principal drafters of this document are Joseph T. Horning, Regulations Development Branch, Office of Hazardous Materials Regulation and Douglas A. Crockett, Office of the Chief Counsel, Research and Special Programs Administration.

The following is a review of each section as proposed in the notice which appeared in the *FEDERAL REGISTER* on Oct. 11, 1974 and the manner in which the proposed amendments were handled.

PART 171

Section 171.7. Paragraph (d) of this section has been amended to reflect the reference in § 173.302(a)(4) to Federal Specification RR-C-901b.

PART 172

Section 172.101 (formerly 172.5). The entries of methyl bromide, pressurized; methyl bromide and chloropicrin mixture, pressurized; methyl bromide and nonflammable, nonliquefied, compressed gas mixtures, liquid; and nitrogen tetroxide-nitric oxide mixture were not addressed under this rulemaking since they were handled by docket HM-103/112 (41 FR 15972, April 15, 1976). The entry of vinyl methyl ether was not addressed under this rulemaking since it was handled by docket HM-139 (42 FR 28132, June 2, 1977). The entry of vanadium oxytrichloride and titanium tetrachloride mixture appears in the hazardous materials table as a new entry. Vanadium oxytrichloride and titanium tetrachloride mixture has been added as a result of a petition for a rulemaking and the favorable shipping experiences documented under exemption 4338.

The proposed amendment to increase the package quantity for motor fuel antiknock compound and tetraethyl lead for rail express service from 55 gallons to 65 gallons has been withdrawn. This proposed amendment is withdrawn because (1) the reference to rail express has been deleted from the regulations since this service no longer exists and (2) such a change would have permitted the materials to be shipped aboard cargo-only aircraft in the increased quantities without any reasonable experience or safety justification.

PART 173

Section 173.24. Several commenters objected to any change of the mini-

minimum thickness referenced for 16 and 20 gage steel in § 173.24(c)(3) and the deletion of references to the steel gage thickness in the individual drum and steel overpack specifications in part 178. These commenters pointed out that the minimum thicknesses which are in the regulations have been the authorized minimums for many years and serve as the basis for the design and performance characteristics of specification drums which are and have been used successfully in the transportation of hazardous materials. The change reflected in the proposed amendment increased the minimum thickness of the steel for the two gages and the commenters indicated there is no evidence that the increased minimums would improve safety. The MTB agrees and has not adopted the proposed amendment nor deleted the present 16 and 20 gage thicknesses for drum and steel overpack specifications in part 178.

Section 173.28. Handled as proposed.

Section 173.65. Handled as proposed.

Section 173.93. Handled as proposed. In addition, paragraph (a)(12) which provides discretionary delegation of authority to the Bureau of Explosives has been deleted.

Section 173.119. Handled as proposed. In addition, paragraph (b)(10) has been amended to authorize a material whose weight does not exceed 12 pounds per gallon. This authorization is based on the favorable shipping experiences reported under DOT-E6496.

Section 173.134. Handled as proposed except revised for clarification purposes. A commenter stated that the regulations should contain a definition for a strong wooden box as the term is used in the proposed amendment of § 173.134(a)(1). This commenter also proposed a definition for this term. The MTB does not agree that a definition is necessary since the proposed definition is basically incorporated in the standard requirements for all packages prescribed in § 173.24.

Section 173.139. Handled by docket HM-139 (42 FR 28132, June 2, 1977).

Section 173.154. Handled as proposed.

Section 173.163. Handled as proposed.

Section 173.208. Handled by docket HM-139 (41 FR 50262, November 15, 1976).

Section 173.217. Handled as proposed.

Section 173.223. Handled by docket HM-139 (42 FR 58937, November 14, 1977).

Section 173.234. Handled as proposed except revised for clarification purposes.

Section 173.242. Handled as proposed.

Section 173.245. Handled by docket HM-139 (43 FR 17942, April 27, 1978).

Section 173.245a. Handled as proposed.

Section 173.247. Paragraph (a)(2) has been handled by docket HM-139 (41 FR 55876, December 23, 1976). Paragraphs (a)(17), (a)(18) and (a)(19) have been handled as proposed.

Section 173.247a. Handled as proposed.

Section 173.266. Handled by docket HM-139 (43 FR 17942, April 27, 1978).

Section 173.268. Handled by docket HM-139 (43 FR 17942, April 27, 1978).

Section 173.269. Handled by docket HM-139 (42 FR 58937, November 14, 1977).

Section 173.299. Handled by docket HM-139 (41 FR 50262, November 15, 1976).

Section 173.302. Paragraph (a)(4) has been revised to authorize oxygen to be shipped in specification 39 cylinders made of aluminum. This authorization is the result of a review of extensive test data submitted by a commenter and an evaluation made of the shipping experiences reported under exemptions which permit oxygen in reusable specification aluminum cylinders under certain conditions.

Section 173.304. Handled as proposed except the addition of vinyl methyl ether to the Table in paragraph (a)(2) was made by docket HM-139 (42 FR 28132, June 2, 1977).

Section 173.314. Handled by docket HM-139 (42 FR 28132, June 2, 1977).

Section 173.338. Handled by docket HM-103/112 (41 FR 57018, December 30, 1976).

Section 173.345. Handled as proposed except the reference to earthenware packagings was deleted by docket HM-103/112 (41 FR 15972, April 15, 1976).

Section 173.348. Handled as proposed.

Section 173.353. Handled by docket HM-103/112 (41 FR 40614, September 20, 1976).

Section 173.354. Handled as proposed.

Section 173.359. Handled as proposed. In addition, paragraph (b)(12) has been added to authorize the use of a specification 37D steel drum for certain materials weighing not more than 12 pounds per gallon. This authorization is based on the favorable shipping experiences reported under DOT-E-6496.

Section 173.364. Handled as proposed.

Section 173.365. Handled as proposed.

Section 173.377. Handled by docket HM-139 (42 FR 58937, November 14, 1977).

PART 174

Section 174.300 (Formerly 174.300). Handled as proposed.

PART 177

Section 177.837. Handled as proposed.

PART 178

Section 178.35-2. Handled as proposed.

Section 178.35a-1. Handled as proposed.

Deletion of paragraph (b) of sections specifying gage thickness. Paragraph (b) of the list has not been deleted as per the notice because of the references in the comments under 173.24.

Size reduction for rolling bars of various sections. Handled by docket HM-121 (39 FR 4498, March 30, 1974).

Sections 178.205-14, 178.205-18. Handled by docket HM-139 (42 FR 58937, November 14, 1977).

Section 178.237. Handled as proposed.

This amendment is a relaxation of existing requirements and is not expected to impose any additional burdens on the public, the government, or to have any environmental or economic impact. For these reasons, the change is being made in less than 30 days after publication in the FEDERAL REGISTER.

In consideration of the fact that CFR Parts 171, 172, 173, 174, 175, 176, 177, and 178 are amended as follows:

PART 171—GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

1. In § 171.7 paragraph (a) added to read as follows:

§ 171.7 Matter incorporated by

• • • • •

(d) • • •

(19) General Services Administration, Federal Specification I is titled "Cylinders, Compressed Gas, With Valve or Plug and 3AA," August 1, 1967.

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PART 172—HAZARDOUS MATERIALS TABLE AND HAZARDOUS MATERIALS COMMUNICATIONS REGULATIONS

2. In § 172.101 the table is amended as follows:

§ 172.101 Hazardous materials table.

(1) *N/A	(2) Hazardous materials descriptions and proper shipping names	(3) Hazard class	(4) Label(s) required (if not excepted)	(5) Packaging		(6) Maximum net quantity in one package		(7) Water shipment		
				(a) Exceptions	(b) Specific requirements	(a) Passenger carrying aircraft or rail car	(b) Cargo only aircraft	(a) Cargo vessel	(b) Passenger vessel	(c) Other requirements
	(Add) Vanadium oxytrichloride and titanium tetrachloride mixture.	Corrosive material	Corrosive	None	173.245, 173.245a.	Forbidden	1 quart	1	6	Shade fr radiant

PART 173—SHIPPERS—GENERAL REQUIREMENTS FOR SHIPMENTS AND PACKAGINGS

3. In § 173.28 the introductory text of paragraph (m) is revised to read as follows:

§ 173.28 Reuse of containers.

(m) Specifications 17C, 17E, and 17H steel drums (§§ 178.115, 178.116, 178.118 of this subchapter) from which contents have been removed, may be reused as prescribed in this part as packagings for shipment of flammable liquids, flammable solids, organic peroxides, oxidizers, poisons covered by § 173.370, radioactive materials, and corrosive liquids covered by §§ 173.249 and 173.249a, only if the following requirements, in addition to the other requirements of this section, are complied with prior to each reuse:

4. In § 173.65 paragraph (a)(5) is revised to read as follows:

§ 173.65 High explosives with no liquid explosive ingredient nor any chlorate.

(a) ***

(5) When these explosives contain over 5 percent moisture, each box must have inside securely closed polyethylene bags having a minimum wall thickness of 0.006-inch, or must incorporate a specification 2L (§ 178.30 of this subchapter) lining. Polyethylene is authorized only for materials that

will not, react with, or cause decomposition of the plastic.

5. In § 173.93, paragraph (a)(1) is added; paragraphs (a)(12) and (e)(4) are deleted as follows:

§ 173.93 Propellant explosives (solid) for cannon, small arms, rockets, guided missiles, or other devices, and propellant explosives (liquid).

(a) ***

(1) Specification 12H, 23G, or 23H (§ 178.209, 178.218, 178.219 of this subchapter) fiberboard boxes with inside securely closed polyethylene bags having a minimum wall thickness of 0.006-inch.

(12) (Deleted)

(e) ***

(4) (Deleted)

6. In § 173.119 paragraphs (a)(23) and (b)(10) are revised to read as follows:

§ 173.119 Flammable liquids not specifically provided for.

(a) ***

(23) Specification 12A (§ 178.210 of this subchapter). Fiberboard box, with inside glass bottles or specification 2E (§ 178.24a of this subchapter) polyethylene bottles, not over 1 gallon capacity each. Polyethylene bottles are au-

thorized only for materials that will not react with, or cause decomposition of the plastic. Not more than four inside bottles exceeding 5 pints capacity each may be packed in a package. Shipper must have established that the completed package meets the test requirements prescribed by § 178.210-10 of this subchapter.

(b) ***

(10) Specification 37D (§ 178.137 of this subchapter). Nonreusable steel drum authorized only for a material not exceeding a weight of 10 pounds per gallon. For a material weighing more than 10 pounds per gallon but not exceeding a weight of 12 pounds per gallon, drum made of not less than 21-gage body and 20-gage heads must be used.

7. In § 173.134 the introductory text of paragraph (a) and paragraph (a)(1) are revised to read as follows:

§ 173.134 Pyroforic liquids, n.o.s.

(a) Pyroforic liquids, n.o.s., must be packed in specification packagings as follows:

(1) Cylinders as prescribed for any compressed gas except acetylene and having a minimum design pressure of 175 pounds per square inch. Cylinders with valves must be:

(i) Equipped with steel valve protection caps or collars, when shipped loose,

(ii) Overpacked in a strong wooden box; or

(iii) Overpacked in a specification 33A (§178.150 of this subchapter) polystyrene case. When overpacked, cylinders must be secured to protect all valves. Unless packed in a box or case, any safety relief device must be in the vapor space of any loaded cylinder. (See §§ 174.300(d) and 177.837(d) of this subchapter.)

8. In § 173.154 paragraph (a)(19) is added to read as follows:

§ 173.154 Flammable solids, organic peroxide solids and oxidizers not specifically provided for.

(a) * * *
(19) Specification 6D or 37M (§§ 178.102, 178.134 of this subchapter). Cylindrical steel overpacks (non-reusable containers) with inside specification 2S, 2SL, or 2U (§§ 178.35, 178.35a, 178.24 of this subchapter) polyethylene packaging.

9. In § 173.163, paragraph (a)(9) is added to read as follows:

§ 173.163 Chlorate of soda, chlorate of potash, and other chlorates.

(a) * * *
(9) Specification 56 (§§ 178.251, 178.252 of this subchapter). Metal portable tanks.

10. In § 173.217 paragraph (a)(5) is revised; paragraph (a)(9) is added to read as follows:

§ 173.217 Calcium hypochlorite mixture, dry; lithium hypochlorite mixture, dry; mono-(trichloro) tetra-(monopotassium dichloro)-penta-s-triazinetriene, dry; potassium dichloro-s-triazinetriene, dry; sodium dichloro-s-triazinetriene, dry; trichloro-s-triazinetriene, dry.

(a) * * *
(5) Specification 21C (§ 178.224 of this subchapter). Fiber drum must be made with integral inner body ply having 0.003-inch minimum thickness aluminum facing and bottom inner ply having 0.001-inch minimum thickness aluminum facing. Cover of drum must be gasketed. Authorized net weight not over 400 pounds. Authorized only for dry calcium hypochlorite mixtures.

(9) Specification 12B (§ 178.205 of this subchapter). Fiberboard box with not more than two inside minimum 30-gauge thick steel pails containing not over 26 pounds net weight each. Each cover must be gasketed.

11. In § 173.234, paragraph (a)(2) is revised to read as follows:

§ 173.234 Sodium nitrite and sodium nitrite mixtures.

(a) * * *
(2) Specification 44C (§ 178.237 of this subchapter). Multiwall paper bags. Each bag must be constructed as follows and, in addition, each bag must have one inner ply bonded or coated with polyethylene or other suitable pliable plastic material having a minimum basis weight of 10 pounds, or an additional polyethylene inner ply (free film) of equivalent moisture barrier properties:

(i) At least 5 plies having a minimum total basis weight of 310 pounds, or at least 4 plies of extensible Kraft paper having a minimum basis weight of 240 pounds. Maximum authorized net weight is 100 pounds; or

(ii) At least 3-plies of extensible Kraft paper having a minimum basis weight of 180 pounds. Maximum authorized net weight is 50 pounds.

12. In § 173.242, paragraphs (a) and (b) are revised to read as follows:

§ 173.242 Bottles containing corrosive liquids.

(a) Bottles containing corrosive liquid.

Corrosive liquid	Authorized tank car	Authorized portable tank ¹
Change—Ethyl chlorothioformate.....		DOT-51 monel or monel clad.
Add—Vanadium oxytrichloride and titanium tetrachloride mixture.....		DOT-51.

14. In § 173.247 the heading and paragraph (a)(17) are revised; paragraphs (a)(18) and (a)(19) are added to read as follows:

§ 173.247 Acetyl bromide; acetyl chloride; acetyl iodide; antimony pentachloride; benzoyl chloride; boron trifluoroacetic acid complex; chromyl chloride; dichloroacetyl chloride; diphenylmethyl bromide solutions; pyrosulfuryl chloride; silicon chloride; sulfur chloride (mono and di); sulfuryl chloride, thionyl chloride; tin tetrachloride (anhydrous); titanium tetrachloride; trimethyl acetyl chloride.

(a) * * *
(17) Specification 4BA240 or 4BW240 (§§ 178.51, 178.61 of this subchapter). Cylinders authorized for titanium tetrachloride or tin tetrachloride, anhydrous, without any compressed gas. Specification 4BW carbon steel cylinders authorized for antimony pentachloride. Safety relief devices

are authorized only on cylinders containing titanium tetrachloride.

(18) Specification 3E1800 (§ 178.42 of this subchapter). Cylinder authorized only for titanium tetrachloride, anhydrous.

13. In § 173.245a the table in paragraph (a) is amended as follows:

§ 173.245a Corrosive liquids, not otherwise specified, shipped in bulk,
(a) * * *

are authorized only on cylinders containing titanium tetrachloride.

(19) Specification 51 (§ 178.245 of this subchapter). Portable tank authorized only for titanium tetrachloride, anhydrous, without any compressed gas.

15. In § 173.247a paragraphs (a)(1) and (a)(3) are revised to read as follows:

§ 173.247a Vanadium tetrachloride and vanadium oxytrichloride.

(a) * * *
(1) Specification 3A, 3AA, 4B2, 4EA240, 4BW240, or 3E1800 (§§ 178.37, 178.50, 178.51, 178.61, 178.42 of this subchapter). Cylinders.

(3) Specification MC 310, MC 311, MC 312 (§§ 178.340, 178.343 of this

subchapter). Tank motor vehicles. Authorized only for vanadium oxytrichloride with an inert non-soluble gas padding, adequate to exclude the presence of air. Specification MC 310 and MC 311 cargo tanks must be in compliance with § 178.343-2 (b) or (c) as applicable, and §§ 178.340-9(a) and 178.343-4(a) of this subchapter. Not authorized for transportation by water.

16. In § 173.302 paragraph (a)(4) is revised to read as follows:

§ 173.302a Charging of cylinders with non-liquefied compressed gases.

(a) * * *

(4) Specification 39 (§ 178.65 of this subchapter) cylinder. For flammable gases, internal volume may not exceed 75 cubic inches. Aluminum cylinders are authorized for oxygen only under the following conditions:

(i) Cylinder threads must be straight threads;

(ii) Valves must be made of brass; and

(iii) Each cylinder must be cleaned in compliance with the requirements of Federal Specification RR-C-901b, dated August 1, 1967, paragraph 3.8.2. One cylinder selected at random from each lot of 200 or less must be tested as prescribed in RR-C-901b, para-

graph 4.4.2.3, and meet the standard of cleanliness specified.

17. In § 173.304 paragraph (a)(1) is revised; the table in paragraph (a)(2) is amended as follows:

§ 173.304 Charging of cylinders with liquefied compressed gas.

(a) * * *

(1) Specification 3, 3A, 3AA, 3B, 3BN, 3D, 3E, 4, 4A, 4B, 4BA, 4B-ET, 4BW, 4E, 9, 25, 26, 38, 39, 40, or 41, (§§ 178.36, 178.37, 178.38, 178.39, 178.41, 178.42, 178.48, 178.49, 178.50, 178.51, 178.55, 178.61, 178.65, 178.68 of this subchapter), except that no specification 4E, 9, 39, 40, or 41 packaging may be charged and shipped with a mixture containing a pyroforic liquid, carbon bisulfide (disulfide), ethyl chloride, ethylene oxide, nickel carbonyl, spirits of nitroglycerin, or poisonous material (class A, B, or irritating material), unless specifically authorized in this part.

(2) * * *

* Use of existing cylinders authorized, but new construction not authorized.

Kind of gas	Maximum permitted filling density (see note 1)	Containers marked as shown in this column or of the same type with higher service pressure must be used except as provided in § 178.34(a), (b), § 173.301(j) (see notes following table)
<i>Change</i>	<i>Percent</i>	
Hydrogen chloride.....	65.....	DOT-3A1800; DOT-3AA1800; DOT-3AX1800; DOT-3AA1300; DOT-3; DOT-3T1800; DOT-3E1800.
Liquefied, nonflammable gases, liquid other than those classified as flammable, corrosive, or poisonous, and mixtures or solutions thereof, charged with nitrogen, carbon dioxide, or air (see notes 7 and 8).	Not liquid full at 130° F.	Specification packaging authorized in paragraph (a)(1) of this section and DOT-3HT; DOT-4D; DOT-4DA; DOT-4DS.
Sulfur hexafluoride	120.....	DOT-3A1000; DOT-3AA1000; DOT-3; DOT-03E1800.
.....
.....

18. In § 173.345 paragraph (a)(2) is revised to read as follows:

§ 173.345 Limited quantities of Poison B liquids.

(a) * * *

(2) In glass packagings not over 1 pint capacity each, or in metal or polyethylene packagings (other than bags) not over 1 quart capacity each, packed in a strong outside fiberboard box or molded expanded polystyrene case.

19. In § 173.348 paragraph (a)(4) is added to read as follows:

§ 173.348 Arsenic acid.

(a) * * *

(4) Specification 21P (§ 178.225 of this subchapter). Fiber drum overpack with inside specification 2S, 2SI, or 2U (§§ 178.35, 178.35a, 178.24 of this subchapter) polyethylene packaging of not over 30-gallon capacity.

20. In § 173.354 paragraph (c) is revised to read as follows:

§ 173.354 Motor fuel antiknock compound or tetraethyl lead.

(c) Steel tank conforming or equivalent to ASME specifications which contain solid or semisolid residual motor fuel antiknock compound (including rust, scale, or other contaminants) may be shipped by rail freight or highway. The tank must have been designed and constructed to be capable of withstanding full vacuum. All openings must be closed with gasketed blank flanges or vapor tight threaded closures. Each tank must be secured and braced to prevent movement under conditions normally incident to transportation.

21. In § 173.359 paragraphs (a)(17) and (b)(12) are added to read as follows:

§ 173.359 Hexaethyl tetraphosphate mixtures; methyl parathion mixtures; organic phosphorus compound mixtures; organic phosphate compound mixtures; parathion mixtures; tetraethyl dithio pyrophosphate mixtures; and tetraethyl pyrophosphate mixtures, liquid (includes solutions, emulsions, or emulsifiable liquids).

(a) * * *

(17) Specification 37D (§ 178.137 of this subchapter). Nonreusable steel drum which must be made of not less than 21-gauge body and 20-gauge heads. Authorized only for methyl parathion mixtures, parathion mixtures, and organic phosphate compound mixtures, not exceeding a weight of 12 pounds per gallon.

(b) * * *

(12) Specification 37D (§ 178.137 of this subchapter). Nonreusable steel drum which must be made of not less than 21-gauge body and 20 gauge heads. Authorized only for methyl parathion mixtures, parathion mixtures, and organic phosphate compound mixtures, not exceeding a weight of 12 pounds per gallon.

22. In § 173.364 paragraph (a)(1) is revised to read as follows:

§ 173.364 Limited quantities of Poison B solids.

(a) * * *

(1) In inside glass, earthenware, or composition bottles or jars, or metal packaging, or lock-corner sliding-lid wooden boxes, not over 5 pounds capacity each; or inside chipboard, pasteboard, or fiber cartons, cans, boxes, or tightly closed strong plastic bags or bottles compatible with product, not over 1 pound capacity each, packed in

